Abstract Of The Disclosure

The trend in personal and light commercial transportation vehicle choices is heading toward electric or fuel cell vehicles capable of zero emission. Their demand for electricity to re-charge batteries or hydrogen to operate fuel cells can best be met by onsite production of electricity and hydrogen from conventional transportation fuel by an on-site energy supply system employing a conversion device. This approach can result in minimum changes in the present day infrastructure of the automobile and truck service station industry and can avoid any disturbances to the normal operation of the electric power industry. The onsite hydrogen/electricity hybrid conversion device is a reformer and/or a fuel cell. The output of the system can be varied to either meet the demand of hydrogen fuel for fuel cell vehicles or to provide electricity for charging batteries used on the electrical vehicles. The onsite distributed energy supply system utilizing a high temperature solid oxide fuel cell system for electric generation and an integral steam reforming system for hydrogen production are the most desirable approaches. One such energy supply system allows the total CO_2 capture for sequestration, while concomitantly providing for high system efficiency and full system utilization. The CO_2 collection feature promotes the commercial realization of zero/low emission energy supply for onsite installations.